



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D205-596-107

Job Sheet 173829



Part No: D205-596-107

Job Qty: 1 ea

Part Name: Aft Crosstube - Extended Height 31"



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 3/7/18

Job Tracking No:

Due Date: 4/13/18

Created By: Linda Lacelle

Type: Stock

Description:

Note: D205-596-107 REV.C IPP Rev:D 05.03.21 Added bending procedure KJ/JLM IPP Rev:E 08-01-10 ECN 1075
DD IPP Rev F 08.04.28 Added bending & mat'l EC verified by: DD IPP REV:G 13.11.29 as per dwg DEO B-2
DD VERF:JLM IPP REV:H 15.01.28 as per dwg DEO B-3/CHG004 DD VERF:JLM IPP REV:I 18.02.08 AS
PER DWG REV.C DD VERF:JFS

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea	4/12/18	4/12/18	0.00	0.00	Start Up Crosstubes-1		GP
105	HandFXtube	1 pcs	4/12/18	4/12/18	0.00	0.47	HandFinish5		GP
107	QC	1 pcs	4/12/18	4/12/18	0.00	0.00	QC7-1		GP
110	CNC Bend Crosstubes	1 pcs	4/12/18	4/12/18	2.56	0.00	CNC Bend Crosstube		GP 18/15/13
130	QC	1 pcs	4/12/18	4/12/18	0.00	0.00	QC15		GP
140	Crosstubes	1 pcs	4/12/18	4/12/18	0.00	2.32	Crosstubes-1		GP
150	HandFXtube	1 pcs	4/12/18	4/12/18	0.00	0.47	Crosstubes-3		GP DAS
160	QC	1 pcs	4/12/18	4/12/18	0.00	0.00	QC5		38 DAS
170	QC	1 pcs	4/12/18	4/12/18	0.00	0.00	QC7-1		38 DAS
180	SprayPaint	1 pcs	4/12/18	4/12/18	0.00	2.68	Spray Paint		AS MAR 29 2018
190	QC	1 pcs	4/12/18	4/12/18	0.00	0.00	QC14		AS
200	Crosstubes	1 pcs	4/13/18	4/13/18	0.00	2.32	Crosstubes-1		AS APR 04 2018
210	QC	1 pcs	4/13/18	4/13/18	0.00	0.00	QC5		38
215	DC	1 pcs	4/13/18	4/13/18	0.00	0.00	DC		9-89
220	Packaging	1 pcs	4/13/18	4/13/18	0.00	0.00	Packaging3-1		SMB
230	QC21-FG	1 Ea	4/13/18	4/13/18	0.00	0.00	QC21		DAS APR 16 2018

Part Op 105 - INSIDE AND OUT

Descriptions: 110 - 1- Bend as per Dwg D2890 using CNC bender program D2890 2- Mark cut lines as per dwg D205-596-107

140 - 1-Cut as per dimension sheet 2-Deburr & Inspect for surface damage. Polish cut surface.Scribe part # and batch # on one end of tube.

150 - ***IMMEDIATELY AFTER GRINDING***

180 - 1-Prime inside and outside per QSI 005 4.2

200 - 1- Lightly scuff the bonded area using a 180 grit sand paper and clean the area with 41058 wash 'n' wipe 2- Apply Proseal as per dwg D205-596-107. 3- Install clamps as per dwg (Note 12) Torque clamps 80 to 100 in-lb as per dwg and Note 13) 138784 exp 9/18

210 - ***PRIOR TO PACKAGING RECHECK TORQUE ON CLAMPS AFTER PROSEAL HAS CURED 72HOURS.***

215 - Photocopy D205-594 bluefile & type labels per PPP D205-596-107 CHG003

220 - Identify and pack for shipping as per PPP D205-596-107

QA Closed: _____ Date: _____

Work Order update only

Work Order: _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐	AGAINST DEP. Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐		
Part No. _____					
NCR No. _____					
Date : _____				Step #: _____	QTY Effective : _____

Description Work Order Deviation	Disposition

Root Cause			FAULT CATEGORY			
Environment	☐	☐ No Re-verification	☐ Pressure/Forced	☐ Temperature/Cure	☐ Power Loss/Surge	☐ Positioned Wrong
Design	☐	☐ Operator	☐ Bending	☐ Set-up	☐ Folio/Program	☐ Outside Dimensions
Doc/Data	☐	☐ Offset/Setup	☐ Centre Not Concentric	☐ BOM/Route	☐ Grain	☐ Over/Under tolerance
Equip/Tooling	☐	☐ Supplier	☐ Cracks	☐ Broken/Damage/Defect	☐ Weld	☐ Part Incorrect
Handling/Pre	☐	☐ Training	☐ Crimp/Kink/Ripple/Wave	☐ Inspection Incomplete/Unqualified	☐ Wrong Stock Pulled	☐ Part Lost/Missing
Material	☐	☐ Use for Testing	☐ Cuffs	☐ Contamination	☐ Out of Sequence	☐ Part Moved
Internal Transport	☐	☐ Poor Information	☐ Crushing	☐ Countersink	☐ Off-set	☐ Drawing
Tribal Knowledge	☐	☐ Rushing	☐ Heat Treat	☐ Cut Too Short	☐ Mislabeled	☐ Finish
LOA	☐	☐ Product Improvement	☐ Wave/Twist in Tube	☐ Instructions Incomplete/Unclear	☐ Fit/Function	☐ Misread
Substation	☐	☐ Process Improvement	☐ Marks/Chatter	☐ Drill Holes	☐ Misaligned/off center	☐ Turning Sequence
Past Expiry Date	☐	☐ Manufacturing Process				
Misidentified	☐	☐ Past Due	☐ OTHER :			

Date: 03/14/12

Container No: S051337

 Part: D205-596-107
 Job No: 173829
 Serial No/Batch: S051337
 Revision: C
 Inspector:

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Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D6008-180	Crosstube Extrusion	1 Ea (1 ea)	110-CNC Bend Crosstubes	
D2940-1	Support	2 Ea (2 ea)	200-Crosstubes	
D3595-063-530	Rubber Cushion 0.63" Wide X 5.30" Long	4 Ea (4 ea)	200-Crosstubes	
MS21920-28	Clamp	4 Ea (4 ea)	200-Crosstubes	

Primer# M138687

Paint # 138793

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
110-CNC Bend Crosstubes	D6008-180	1	11	0
200-Crosstubes	D2940-1	2	7	0
	D3595-063-530	4	1	0
	MS21920-28	4	99	0

Part Specifications

Specifications could not be found.

Plex 3/7/18 1:50 PM dart.lacelle.linda

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

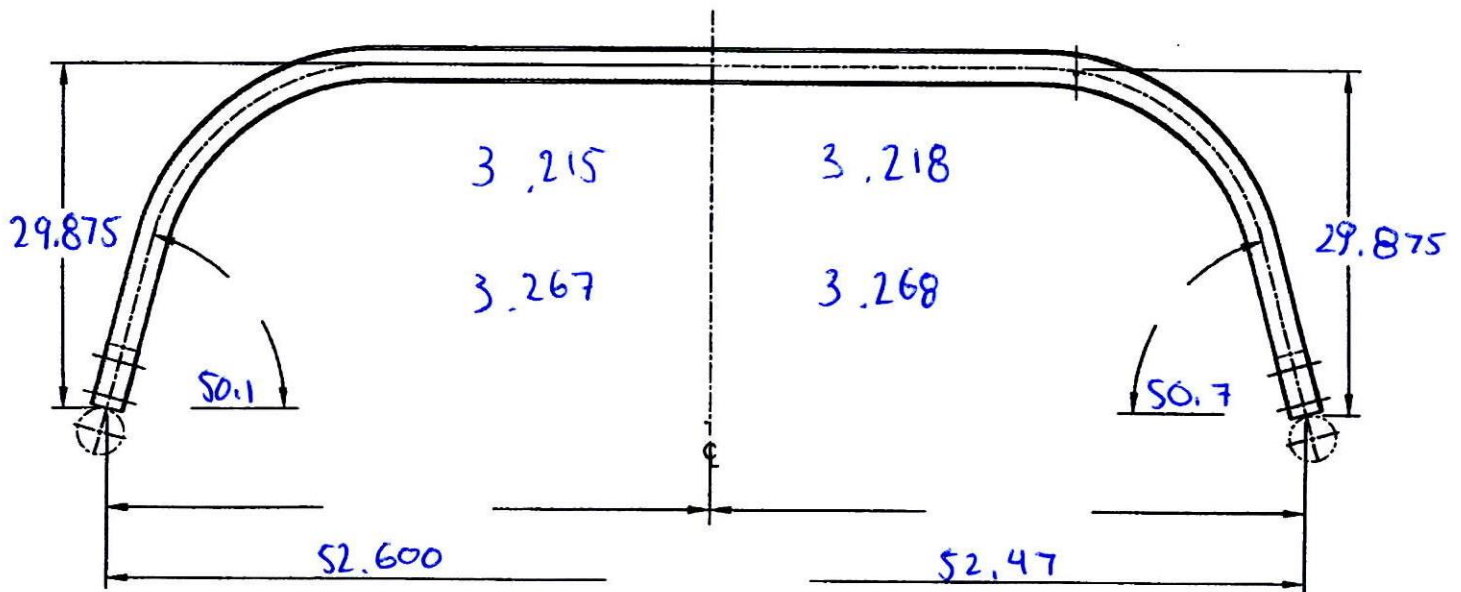
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐		OTHER : _____					

DART AEROSPACE LTD		Work Order: 173829
Description: Crosstube High-High Aft		Part Number: D205-596-107
Inspection Dwg: D205-596-107 Rev: B		Page 1 of 1

Required Dimension	Min	Max
Height	29.7	29.9
1/2 Span	52.4	52.6
Angle	49	52
Total Span	104.8	105.2
Bending Passes	3	--
Crushing	--	6%



	Side A	Side B
Bending Passes	12	8
Crushing	0.8%	0.8%
Comments		

QC15 Inspection	<i>[Signature]</i>
Date	18-03-15

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	08.04.21	Dwg Rev updated	KJ/JM	
C	12.04.16	Added bending, crushing dimensions	KJ <i>[Signature]</i>	<i>[Signature]</i>

PARTS LIST:

ITEM	QTY -107	QTY -107B	PART NUMBER	DESCRIPTION
	X		D205-596-107	CROSSTUBE ASSEMBLY, HI-HI AFT
		X	D205-596-107B	CROSSTUBE ASSEMBLY, HI-HI AFT, 214
1	1	1	D6008-180	CROSSTUBE
2	2		D2940-1	SUPPORT
3	4	4	D3595-063-530	RUBBER CUSHION
4		2	D5018-1	SUPPORT, 214 AFT
5		4	MS21920-28	CLAMP
6		A/R	PROSEAL 890 B-2	SEALANT (OR AMS-S-8802 CLASS B-2)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURE FROM D6008-180
FINISHED LENGTH = 127.28 ± 0.02
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART 005 4.2
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS
- 7) WEIGHT: 50 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE
- 9) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) TO INSTALL D2940-1 / D5018-1 SUPPORTS: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 12) INSTALL MS21920-28 CLAMPS WITH D3595-063-530 RUBBER CUSHIONS TO SECURE D2940-1 SUPPORT. ENSURE CLAMP MECHANISMS ARE ON TOP SIDE OF CROSSTUBE.
NOTE: IT IS ACCEPTABLE TO SUBSTITUTE MS21920-28 CLAMPS WITH LONGER OR SHORTER MS21920-XX CLAMPS TO ACCOMMODATE VARYING DIAMETERS. ENSURE THERE IS A MINIMUM OF 1.5 THREADS IN SAFETY ON THE NUTS.
- 13) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

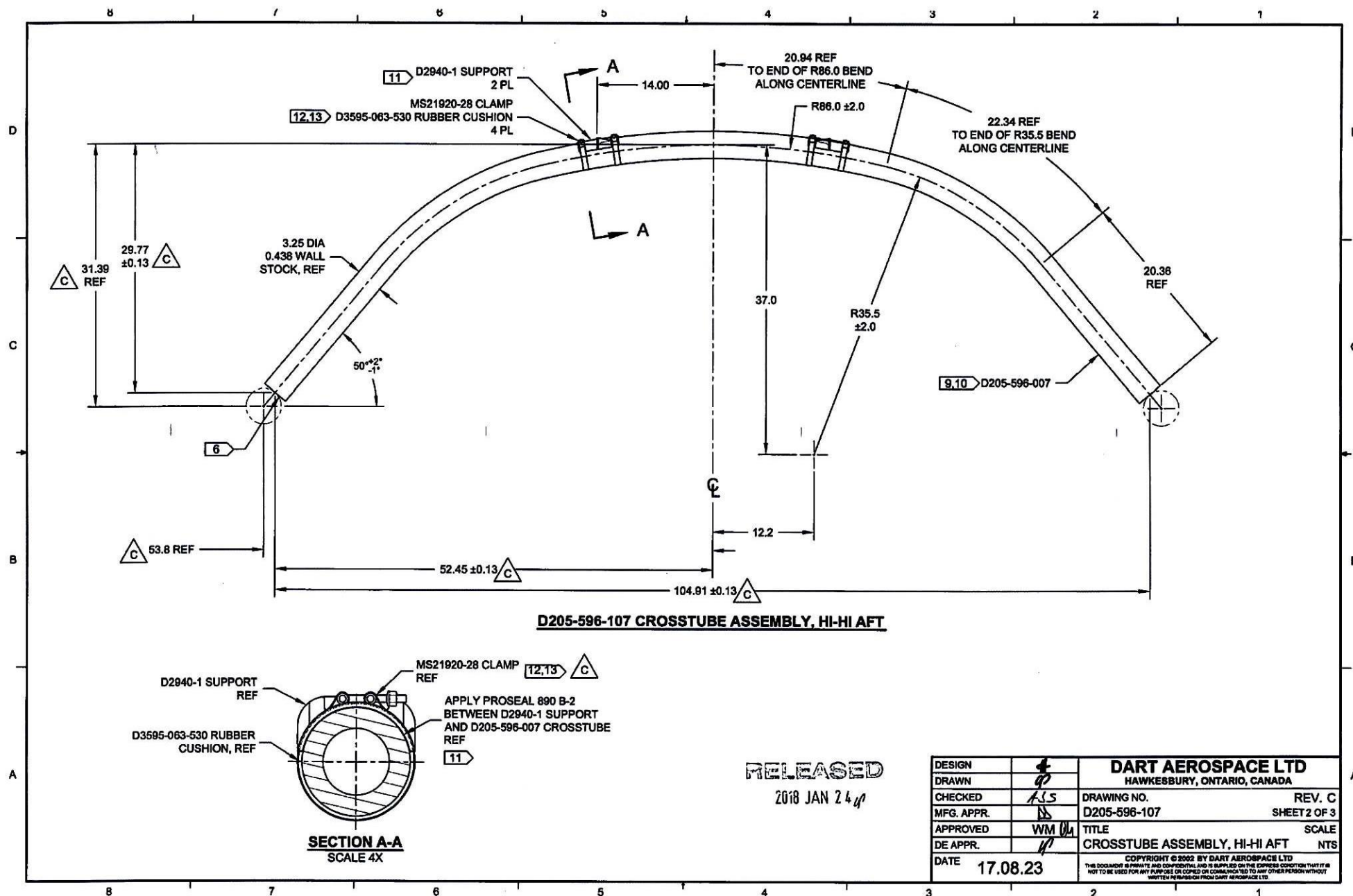
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WORK ORDER
NO. 173829 *mgf*

MAR 07 2018

RELEASED

2018 JAN 24 *4p*
ECN 18-525

C	REFORMAT, ADD SHT 3, HEIGHT/WIDTH DIM & TOL CHG, ADD TOTAL WIDTH DIM (B4-2, B4-3), CLAMP ORIENTATION FLIPPED (A5-2, A5-3), INCORP DEO'S	CP	17.08.23
B	SUPPORT NOW MAGNOBONDED; REMOVE D2856-800-1008 ABRASION STRIP; UPDATED NOTES; ADDED D3595-063-530 CUSHION	MB	07.12.03
A	NEW ISSUE	DS	02.11.20
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>4p</i>	DART AEROSPACE LTD	
DRAWN	<i>4p</i>	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>4p</i>	DRAWING NO.	REV. C
MFG. APPR.	<i>4p</i>	D205-596-107	SHEET 1 OF 3
APPROVED	<i>4p</i>	TITLE	SCALE
DE APPR.	<i>4p</i>	CROSSTUBE ASSEMBLY, HI-HI AFT	NTS
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CHECKED		DRAWING NO.	REV. C
MFG. APPR.		D205-596-107	SHEET 2 OF 3
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